

Exploring Biodiversity with iNaturalist

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Overview

The lesson plan “Exploring Biodiversity with iNaturalist” introduces fifth-grade students to biodiversity via direct contact with their local environment, using the iNaturalist app. Students will document numerous species, engage in citizen science projects, and gain an understanding of ecosystems. The lesson stresses hands-on learning, digital documentation, and critical analysis of ecological linkages, with the goal of cultivating a profound respect for biodiversity and life’s interconnection.

Vocabulary

- * Biodiversity: The variety of life in the world or in a particular habitat or ecosystem.
- * Species: A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
- * Ecosystem: A biological community of interacting organisms and their physical environment.
- * Observation: The action or process of observing something or someone carefully or in order to gain information.

Next Generation Science Standards (NGSS)

- * LS2.A: Interdependent Relationships in Ecosystems
- * LS4.D: Biodiversity and Humans
- * PS1-6: Scientific Inquiry Skills

Required Materials

- * Desktop
- * Notebooks and pencils for taking field notes.
- * Camera

Before the lesson

Instruct children on how to use electronics safely outside and how to engage respectfully with nature. Make a brief list of local sites ideal for biodiversity monitoring (e.g., playground, neighboring park).

Lesson Procedure: Part 1:

Introduction to Biodiversity. Introduce pupils to the notion of biodiversity and its relevance. Activity:

- * Engage kids by asking, “Why do you think different plants and animals live in different places?”
- * Discuss terminology such as “biodiversity,” “species,” “ecosystem,” and “observation.”

- * Explain how biodiversity benefits both ecological health and human well-being.
- * Showcase the iNaturalist app’s mission and worldwide influence on biodiversity.

Part 2: Getting Familiar with iNaturalist

Teach students how to use the iNaturalist app to document observations.

Activity:

- * Demonstrate downloading and setting up the iNaturalist app on a device.
- * Show how to take a photo and upload it as an observation.
- * Explain how to use the app’s identification features to help categorize observations.

Part 3: Planning the Field Observation

Prepare students for the field observation activity.

Activity:

- * Discuss safety and respect for nature while conducting field observations.
- * Review the list of local areas suitable for biodiversity observation.
- * Group students and assign each group specific organisms or areas to focus on.

Part 4: Field Observation with iNaturalist Objective:

Conduct field observations to document local biodiversity.

Activity:

- * Travel to the observation area and allow students to explore.
- * Guide students in making detailed observations and taking photos with iNaturalist.
- * Encourage students to take notes on their observations in their notebooks.

Part 5: Comparative Analysis and Discussion

Analyze observations and discuss findings.

Activity:

- * Back in the classroom, have students share their observations with the class.
- * Facilitate a discussion comparing the biodiversity found in different areas or among different species.
- * Highlight interesting or unexpected findings and discuss their ecological significance.

Part 6: STEM Integration

Activity

- * Students design an ideal habitat for one of the species observed.
- * Analyze and present data on species count or diversity using graphs or charts.

Activity:

Students work in groups to draft their habitat designs or analyze their data.

Each group presents their design or findings to the class.

Part 7: Reflection and Extension

Reflect on the activity and discuss further applications.

Activity:

- * Discuss how biodiversity impacts ecosystem resilience and human life.
- * Encourage students to think about how they can contribute to biodiversity conservation.
- * Introduce extension activities, like monitoring a specific area over time or participating in a BioBlitz.

Assessment

- * Utilize concept maps for connecting observations to ecosystem roles, emphasizing species' interdependencies.
- * Assess students' iNaturalist proficiency through reflective exit slips, focusing on the app's utility in species identification.
- * Use rubrics to evaluate habitat design projects, considering ecological accuracy, creativity, and practicality.
- * Implement think-pair-share discussions for analyzing observation data, fostering peer discussion on statistical findings like species diversity.

References

- * National Geographic Education. (n.d.). Learning Through Citizen Science. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizen-science/>
- * National Geographic Education. (n.d.). Analyzing BioBlitz Data. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizenscience/analyzing-bioblitz-data/>
- * National Geographic Education. (n.d.). Learning with Species Pages. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizenscience/learning-with-species-pages/>
- * National Geographic Education. (n.d.). Activity: Science Connections Using iNaturalist.org. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizenscience/activity-science-connections-using-inaturalistorg/>
- * National Geographic Education. (n.d.). Wrap-Up and Make a Plan. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizen-science/wrapup-and-make-a-plan/>
- * National Geographic Education. (n.d.). Interdisciplinary Connections. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizenscience/interdisciplinary-connections/>
- * National Geographic Education. (n.d.). Next Steps. Retrieved from <https://www.nationalgeographic.org/education/learning-through-citizen-science/nextsteps/>